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Capt. Samuel Morey

WHO BUILT A STEAMBOAT FOURTEEN
□ □ □ □ YEARS BEFORE FULTON □ □ □ □



By GABRIEL FARRELL, JR.

Portrait and Illustrations
by A. C. GOW

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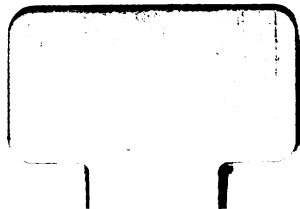
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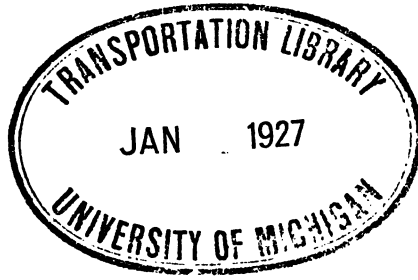
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Drawn for GRANITE STATE MAGAZINE by A. C. Gow, '09

CAPT. SAMUEL MOREY
Inventor of the Steamboat

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Capt. Samuel Morey

Who Built a Steamboat Fourteen Years Before Fulton

By GABRIEL FARRELL, JR.

Coming at this time, when the minds of many are filled with the admiration and applause felt for Robert Fulton as the inventor of the steamboat, the following account of a more humble, yet more deserving, inventor contains greater interest to all who have the love of the Granite State in their hearts. While we are willing that New York's mechanic—some higher title if you please—should receive a large meed of praise for his successful application of steam power in propelling his boat, the "Clermont," we do deplore the wholesale credit that his followers shower upon him without qualification. In the words of another, "Had he comprehended the value of his own invention, and had he found such a wealthy and powerful patron as Fulton found in Chancellor Livingston, Samuel Morey and not Robert Fulton would be hailed as the father of steam navigation."—*Editor.*

AT THIS time, when New York is enthusiastic over the invention of the steamboat and is doing its utmost to pay tribute to Robert Fulton, whom history credits with that important invention, other experimenters in that line, aspiring to the honor of being the original inventor, come to our knowledge. From the little town of Orford, New Hampshire, comes such a claim, and it is one which appears to be sufficiently authenticated upon investigation. It is claimed that Capt. Samuel Morey ran the first steamboat upon the Connecticut River, at this point, in the year 1793, which is fourteen years before the launching of the "Clermont." Whatever may be the value of this claim, the career of Captain Morey, as one of New Hampshire's pioneer settlers, and as a man of wonderful inventive genius far beyond his time, is an interesting narrative.

The first settlers in the town of Orford were John Mann and his wife, who started from Hebron, Conn., Octo-

ber 16, 1765. They made the journey in eight days, the young wife on horseback, and her husband much of the way on foot. About three months later, these pioneers of a new settlement were followed by another family from Hebron, consisting of Col. Israel Morey, his wife and several children.

This journey of about two hundred miles was made in the dead of winter—January, 1766—with an ox team, the wife carrying in her arms an infant six months old. What a journey was that to be made at such a season, much of it through a pathless forest, an unbroken wilderness. From Charlestown to Orford, sixty miles, it is said that there were no roads, only a footpath with marked trees for guide posts.

The family settled in Orford, and during the Revolution the father was made general and commanded a body of brave men upon the frontier. He was a man of great mental force and soon became of much influence in that vicinity. Among the children of this hardy and courageous pioneer was a boy four years of age, named Samuel.

From what can be learned of the every day walks of the son Samuel, he seems to have inherited his father's general characteristics and developed into a man of equal force, of massive brain and mind, coupled with a splendid talent for mechanical ideas and pursuits. The earlier days of his life were passed within the limits of the township of Orford, but for a few years previous to his death, in 1843, he lived in Fairlee, Vt., just across the waters of the Connecticut, upon which he made his early experiments.

Morey possessed large tracts of land upon both sides of the Connecticut. Fifteen hundred acres of it lay around Fairlee pond. This tract was covered with large pines of primitive growth, towering to the sky and as yet untouched by the ax of man. He gave his attention largely to lumbering, and during the winter he employed many men and oxen, drawing this timber to the Connecticut River.



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ORFORD AND THE CONNECTICUT RIVER

A considerable portion of this territory was inaccessible except to men. Teams were entirely out of the question, so in order to secure the timber from the remote, lofty sections, Morey constructed large log slides. Down these the great pines were shot during the winter, ever increasing in speed until they finally landed at their destination, the shore of the pond. A canal was cut from the pond to the Connecticut River, for the transfer of these logs. Portions of this slide can still be seen on some of the hillsides and traces of the canal are still visible to visitors.

Aside from his lumbering business, Captain Morey was interested in irrigation, and in the pioneer interests of the day. When the series of locks on the Connecticut River were built from Windsor, Conn., to Olcott Falls, he had charge of some of these, notably those at Bellows Falls, Vt., which were the result of his skillful planning and engineering.

About 1780 he began to devote considerable of his time to matters of steam, heat and light, continuing until 1820 or later, making many experiments, some successful and others not. As a result he invented quite early in his career an apparatus by which the steam escaping from a teakettle was made to do service in turning a spit, the appliance receiving the local name of "steam spit."

While these experiments were in progress Morey corresponded quite frequently with Professor Silliman of Yale College, contributing several articles upon the subjects uppermost in his thoughts, to the "Journal of Science and Arts." One article in particular, which appeared in the first volume of that journal, describes an apparatus for producing light and heat from steam and tar, and of this Professor Silliman says:

"The inventor, not unskilled in chemistry, and aware of the attraction of oxygen for carbon, conceived it practical to convert the constituents of water into fuel by means of its affinity."

He succeeded in producing hydrogen carburetted gas, which, issuing from a pipe and being ignited, gave a blaze from the size of a candle to many hundred times larger, varying at pleasure, showing by his simple apparatus that the burning of water was no hoax, but a reality. Among many valuable papers in the possession of Mr. Leonard Willard, a great grandson of the captain, now residing in Orford, is an old paper fully describing this method of producing light by the use of water and tar. The apparatus described and the results obtained are very similar to those now common on automobile searchlights, in which calcium carbide and water are utilized.

Among these papers are many interesting business letters and documents of Captain Morey, besides a large number of family letters that give interesting descriptions of events of those early days. In possession of various members of the family are patents granted to the inventor signed by presidents from Washington to Jackson.

The first of these, dated on January 29, 1793, bears, in addition to the large, handsome flourish of the father of his country, the bold signature of Thomas Jefferson, then secretary of state. The invention was for a turning spit to be operated by steam. The next bears the signature of John Adams (1799) for an improvement of Morey's new water engine. One dated Washington, November 13, 1800, is signed by Adams and Lee. In 1815, July 14, Morey took out two patents signed by James Madison, president, and James Monroe, secretary of state, for tide and water wheels. December 11, 1817, J. Q. Adams, secretary of state, and William West, attorney-general, signed a patent for an apparatus for securing heat by burning water, called the American Waterburner.

On April 1, 1826, Morey took a patent for a gas or vapor engine, signed by J. Q. Adams, with Henry Clay as secretary of state. The last of these, in 1823, was signed by Andrew Jackson. The one intended to cover his

steamboat is in the rooms of the Historical Society of New Hampshire, and was issued in 1795.

Early in his experimental career, Captain Morey was persuaded that the power of steam could be applied to propelling boats by means of paddle-wheels. He therefore set himself to the task of inventing a boat to be thus propelled by steam. He made the boat, built the steam engine, put in the necessary machinery and made his first trip with complete success, running several miles from Orford up the Connecticut River and returning at the rate of four miles per hour. This was as early as 1793, at least fourteen years before Fulton's trial trip in the "Clermont" up the Hudson, and nine years before his first trial boat constructed in France.

It is doubtful whether Fulton had turned his thoughts to the subject of steamboats before this time. This very year, 1793, is the first mention of this subject in connection with Fulton that is known. Dr. Renwick, in his life of Fulton, mentions that he laid a scheme relating to steam navigation before Earl Stanhope, in a letter dated September 30, 1793. Another writer says, "Robert Fulton had thought of steam as a motive power for vessels as early as 1793." But it is very certain from all accounts that he devoted his energies to other subjects and to other plans until 1793 and later.

There is what appears to be conclusive evidence that Captain Morey, encouraged by Professor Silliman of Yale, went to New York with the model of his boat, and had frequent interviews with Fulton and Chancellor Livingston, before they had invented and put in operation the "Clermont." Morey was cordially received by them and treated with great respect and attention. While at New York they suggested to him some improvements in the construction of his boat, and it is even stated that they offered him for his invention seven thousand dollars if he would return home and make the alterations suggested, so as to operate favorably. These operations he made with entire success, and again repaired to New York, but his

metropolitan friends treated him with such coldness and indifference as to clearly indicate that they desired no further intercourse with him. It is stated by adherents of Morey that Fulton and Livingston, seeing the model of Morey and thus acquiring his ideas, had accomplished their purpose and now were through with the backwoodsman. If these statements, made upon what appears to be competent authority, are true, his treatment by Fulton and Livingston was anything but creditable to them.

Yet the proof appears quite positive and from a variety of sources that he made frequent trips up the Connecticut in his little boat at that time. But as he was so far from leading scientific men and the best mechanical skill, the result was that Fulton, aided by the wealth of others and the influence of friends, finally succeeded in building, shortly after the captain's visit, a large boat upon the very principle of Morey's, namely, paddle-wheels. This has given him the credit of bringing into successful operation this important invention, while the real inventor being a man in obscure life and living far back from the great metropolis has passed into such obscurity as to be wholly unknown to fame.

It is only justice to Mr. Fulton to say that he was the first man, that is, in connection with Chancellor Livingston and by the aid of Livingston's money, to make a practical business success of the steamboat. He did build a boat which was successfully propelled by steam by means of paddle-wheels, and he is, perhaps, properly called the father of American steamboat navigation. But he cannot truthfully claim credit as the first man to operate a steamboat.

The original model of Morey's engine, and the one that is thought to have been shown to Fulton at this time, is in the possession of the Vermont Historical Society. The engine is in good working order, although the copper boiler, of ingenious structure, has suffered explosion. The model is a rotary engine, balanced on a disk one and one-eighth inches in diameter. The disk is attached to a tube



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OLD MOREY HOMESTEAD AT ORFORD

the \mathbb{R}^n is a \mathbb{R}^n -module, and the \mathbb{R}^n -module structure is given by

$$a \cdot (x_1, \dots, x_n) = (ax_1, \dots, ax_n) \quad (a \in \mathbb{R}, (x_1, \dots, x_n) \in \mathbb{R}^n).$$

Let $\mathcal{L}(\mathbb{R}^n, \mathbb{R}^n)$ denote the set of all linear transformations from \mathbb{R}^n to \mathbb{R}^n . Then

$$\mathcal{L}(\mathbb{R}^n, \mathbb{R}^n) \text{ is a } \mathbb{R}^n\text{-module, and the } \mathbb{R}^n\text{-module structure is given by}$$

$$a \cdot T = (ax_1, \dots, ax_n) \quad (a \in \mathbb{R}, T \in \mathcal{L}(\mathbb{R}^n, \mathbb{R}^n)).$$

Let $\mathcal{L}(\mathbb{R}^n, \mathbb{R}^m)$ denote the set of all linear transformations from \mathbb{R}^n to \mathbb{R}^m . Then

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connecting the boiler, and in it are two openings, one-half by one-eighth inch, one connected with the boiler, as mentioned above, the other opening in the air. This forms the valve seat. The valve consists of a second disk, with corresponding openings, fitting exactly upon the surface of the first disk, and from the two openings in this upper disk are tubes leading to the extremities of the cylinder. The piston rod is attached to a stationary crank in the center of the machine. The outward and inward movements of the piston cause the revolution of the upper disk, cylinder, etc., upon the lower disk; thus bringing the valves or openings in the upper disk, alternately over the steam tube and the escape opening of the lower disk. The entire length of the machine is 6 1-2 inches. The cylinder, which is of brass, is 1 15-16 inches in length and 1 1-2 inches in diameter. the length of stroke is 1 3-16 inches. The piston, which is of cast iron, is 1 3-8 inches in diameter, with a groove on the edge in which twine is used for packing. The piston rod plays on friction rollers.

A letter written in 1818, by Samuel Morey to William A. Duer, is most interesting, and gives Morey's own account of his experience. Mr. Duer was a prominent member of the New York legislature. The letter was called forth in connection with the grant of exclusive right to navigate the waters of New York, which was bestowed by the state on Livingston.

Among other documentary proof is a letter written about 1850 by Mr. George A. Morey of Fairlee, Vt., a gentleman of the highest respectability, and a nephew of Captain Morey, who well remembered the story, as frequently told by Captain Morey and others who saw the boat when first built. From this letter the following abstract is taken:

"It is and always has been claimed here, that he was the inventor of the steamboat instead of Fulton. Be that as it may, Fulton saw two of his models before he took a patent; and he (Morey) took two or three patents for the

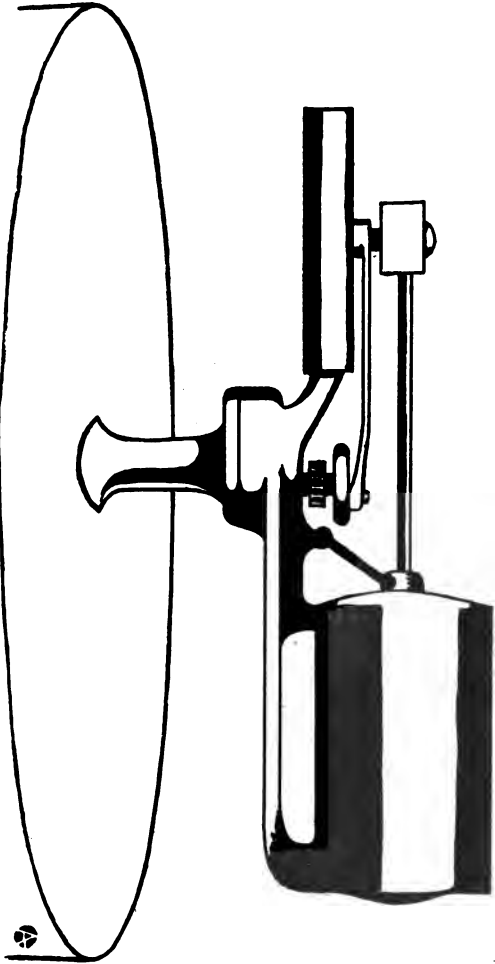
application of steam before Fulton took any. And then Fulton took one for the application of steam to boats, and that, after he had seen both models of Morey."

The most reliable account of Morey's experiments and claim to having made the first application of steam to navigation and the first practical steamboat, was made and published about 1854 by the Rev. Cyrus Mann. Rev. Mr. Mann was the son of the original settler and founder of Orford. He died in 1859 at the age of seventy-three years. Mr. Mann was an educated man, and of the strictest integrity, and is reputed to have spent considerable time and research in the investigation of the respective claims of Fulton, Morey and others, to the credit and honor of a practical success in steam navigation. The following is an abstract from his account of it:

"The credit of the original invention of the steamboat is commonly awarded to Robert Fulton, but it is believed that it belongs primarily and chiefly to a far more obscure individual. So far as it is known, the first steamboat ever seen on the waters of America was invented by Capt. Samuel Morey, of Orford, N. H. The astonishing sight of this man ascending Connecticut River, between that place and Fairlee, in a little boat just big enough to contain himself, and the rude machinery connected with the steam boiler, and a handful of wood for a fire, was witnessed by the writer in his boyhood, and by others who yet survive. This was as early as 1793 or earlier, and before Fulton's name had ever been mentioned in connection with steam navigation."

These statements are further corroborated by the Rev. Joel Mann, a brother of the writer of the above, in his centennial oration at Orford, delivered September 7, 1865. He says:

"If I am not mistaken, Fulton obtained his first idea of such a vessel from Morey, and secured a patent just as Morey had secured, or was preparing to secure, one for himself. Certain it is that the first boat moved by steam was



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THE ENGINE MODEL

a little thing constructed by him, and its trial trip was on this river, opposite this village. The trial was made on a Sabbath, when the people were at meeting, to avoid notice, when he, with a brother of mine, passed up in it to where the bridge now is, for it was important to ascertain whether it would go against the current as well as with it.

"My brother, Cyrus, a few years ago, collected and published the proofs of the fact that Morey was the real inventor of the steamboat, so far at least as steam could be applied to the propelling of such a craft. Had our ingenious townsman lived in Boston or New York, where his facilities for constructing and making improvements would have been such as he needed, he would now probably be acknowledged as the projector of those floating palaces which are crossing the ocean and visiting the remotest portions of the world."

A letter written by a prominent gentleman in St. Johnsbury, Vt., and published in a Boston paper in 1874, says:

"I am inclined to believe that the state of New Hampshire and the town of Orford are entitled to the honor and the claim of the man who first applied steam to navigation on American waters. I remember when a boy of hearing old settlers of Orford tell about Captain Morey's steamboat and how it ran on the Connecticut River. Captain Morey was a man of remarkable inventive genius, and among other strange things, he told the good people of the town that some day he should take a ride on the river in a steamboat. They, of course, were faithless and only laughed at his project. But he persevered and constructed the first steamboat, probably, that ever rode upon river or sea. It was a rude affair for a steamboat, but it proved successful.

"Captain Morey made his first experimental trip on Sunday, during the hours of religious service, when the people were at church. He chose this time so that nobody should see him in case of failure. The people went to meeting those days. On a quiet Sunday, not far either way from 1790, this notable man with his rude craft,

steamed up the river between Fairlee and Orford, entirely alone (this is probably a mistake), and on the following day announced his triumph to the astonished people. Honor to whom honor is due! Soon after this Fulton consulted with Morey, and so did others, and ere long a steamboat was launched on the Hudson, and steam navigation, one of the modern wonders, became a practical fact."

But this first boat in 1793 was not the only experiment of Captain Morey, for about 1820 another boat came into existence on Fairlee Lake. This, the people about there say is the original boat, but the description of it in the possession of the Vermont Historical Society hardly corresponds with that of the earlier craft. The boat is described as follows: A large boat, fully twenty feet in length, painted white, with red streak and black gunwale, called "Aunt Sally." It has also been thought that the engine propelling this boat was the original, which was copied by Fulton.

The "Aunt Sally" was sunk in 1821, by enemies of Captain Morey, it is said. Many assert that the object of this was to destroy all evidence which might point to a successful steamboat earlier than Fulton's. About 1874 the Vermont Historical Society sent a committee to Fairlee to try and find the boat and to ascertain if the engine was the original one and, if so, to preserve it as a historical relic. Owing to insufficient apparatus, their search amounted to naught.

That the ingenious inventor can also place a claim on being the first to run an internal combustion motor boat is strong in the mind of the writer. It is known that on April 1, 1826, Morey took out a patent on a gas or vapor engine. The success or failure of this has never been accounted for hitherto, but the recent discovery by the writer, of a letter, among the papers in the family possession, gives a description of a boat and its propelling power used in 1829. It also shows that the captain was not to be

